REMARKS

Claims 1-114 are in the application.

Claims 35-65 are elected for prosecution. The remaining claims have been withdrawn from consideration, resulting from a restriction requirement which has been made final.

SECOND REQUEST FOR RECONSIDERATION OF RESTRICTION REQUIREMENT

Applicants again request reconsideration of the withdrawal from consideration of claims 1-34 and 66-114, since the filing of these claims evidences an intent to claim the subject matter, and since the effective filing date for these claims is senior to the patent(s) from which they are copied.

The Examiner relies on the fact that MPEP 2303.01 relates to interferences between pending applications as a basis for refusing to consider whether, in fact, an interference should be declared with respect to the non-elected claims. While it appears to be true that there is no corresponding MPEP section to 2303.01 for an interference between an application and an issued patent, it is not true that this leads to a conclusion that the restriction is nevertheless proper. The policies and principles embodied in the applicable rules (37 C.F.R.) and laws (35 U.S.C.) necessarily lead to the conclusion that the issues are the same, and therefore that, upon evidence of applicant's intent to claim the same subject matter as that in an issued patent, the Office should, with special dispatch, seek to determine whether an interference should be declared. This policy therefore dictates that the interference issues arising in divisible inventions be addressed immediately, and not be deferred as a result of a restriction or election requirement.

12

FORMAL REJECTIONS

Claims 36-39, 41-46, 48-54, 56, 57, and 59-65 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants provide below their proffered evidence with respect to support for the dependent claims.

The provided chart is not intended to be limiting, nor to necessarily interpret nor limit claim interpretation. Efforts have been made to limit the number of discrete passages referenced, in order to make the Examiner's analysis more efficient. Passages which particularly relate to the deficiencies noted by the Examiner are non-repetitively highlighted.

It is more generally noted that the discussed "correlation index" is inherently a ranking. (See claim 36). The target profile summary corresponds to the analysis and characterization of the signal, which are automatically generated. (See claims 48 and 56). Content profiles a similar to target profile summaries; these result from either manual or automatic characterization of the content, each of which is disclosed in the specification. (See claims 51, 52, 59, 60 and 64). The specification discloses both tracking of user interaction history, which inherently encompasses frequency of selection, as well as directly discussing "frequently used choices". Further, the specification discusses classification of a user, e.g., "novice", and their expected characteristics. The system determines user class characteristics, such as frequency of selection, and uses these in processing the user history data to make predictions. As such, each customer profile is updated "to reflect" the frequency of selection of the data sources by customers with customer profiles substantially similar to each customer profile. (See claim 54).

The Examiner is respectfully requested to particularly respond to any noted deficiency.

13

ART REJECTIONS

Claims 35-40, 47, 48, 50-52, 54-56, 58-60 and 63 are rejected under 35 U.S.C. § 103 as being obvious in view of Yourick et al. (US 4,775,935), further in view of Lockwood (US 4,567,359).

Claims 35 and 40 are amended to provide that the content records are related to a stored user profile according to a likely degree of interest. This limitation is drawn, for example, from claims 36 and 41, and finds support throughout the specification.

The Examiner agrees that Yourick et al. is deficient with respect to the rejected claims in that it does not teach persistent storage of user-specific data. The Examiner therefore cites Lockwood to supply the missing teachings. In fact, Lockwood does teach the well known proposition that user-specific files or "profiles" may be stored electronically. This, however, does not remedy the deficiencies of Yourick et al., especially in view of the amended claims 35 and 40.

In particular, these references together do not provide an enabling disclosure, allowing one of ordinary skill in the art at the time the invention was made, to make or use the invention. In particular, neither reference teaches or suggests how user-specific, persistently stored data may be used to relate a degree of interest or user preferences. Yourick et al. teach a system which operates on population preferences, without regard to user identity or characteristics. Lockwood does not relate to interests or preferences at all. There are a number of impediments to constructing a system which accounts for long-term inter-user variability, which are neither taught nor suggested by the references.

One particular problem presented by the Yourick et al. model is that it initializes each user without regard for demonstrated interests or preferences. However, the system is apparently

14

intended to promote a "first sale"; if it were to store a user history, it would have to predict, based on both explicitly expressed preferences (user feedback) and implicitly expressed preferences (consummated sales), a subsequent interest or preference of a user. However, this leads to a further inquiry, for example, into the role of the user. Is the item a gift? Does a person need two toasters? How long does a toaster last, such that an inferred negative preference for buying a second toaster becomes a positive preference to replace the old toaster? Etc....

One result of persistent user-specific profiles which are used to infer interest or preferences is that the database grows continually. Yourick et al. describe a system in which the database does not appreciably grow through use. Lockwood describe that a "quotation history file stored in memory is up-dated...." However, Lockwood does not describe at all how this stored quotation history file is used, nor does it suggest a purpose therefore. Fig. 6 may be interpreted to indicate that the "history file" is used to "locate prior quote", and therefore is in no way updated by user feedback or involved in determination of user interest or preferences.

Applicants therefore respectfully submit that the combination of Yourick et al. and Lockwood fail to render the present claims obvious. Reconsideration of the rejection is respectfully requested.

Respectfully submitted,
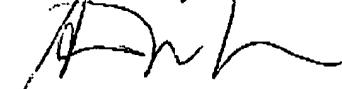
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15

16

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
36. The apparatus according to claim 35,			
wherein said apparatus is an information access system for automatically presenting users with information items of interest;	The "smart screen" aspect of the present invention is further explored in the present example. This aspect of the invention allows the interface to anticipate or predict the intent of the user, to provide, as a default, the most likely action to be taken by the user of the programmable device as a default, which may be either accepted or rejected by the user, without delay to the user. The intelligent selection feature may also automatically choose an option and execute the selected option, without further intervention.	Fig. 17, 1703	159:15-23
wherein said content records storing means comprises a computer system containing a database of information items available to be presented to users of the system;	It is also noted that the present technology could also be applied to any sort of mass storage, such as for a personal computer. In such a case, a characteristic of the computer file, which is analogous to the broadcast program in temporary storage of a VCR, is classified according to some criteria, which may be explicit, such as an explicit header or identifying information, or implicit, such as a document in letter format, or a memorandum, as well as by words and word proximity. In particular, such a recognition system could differentiate various clients or authors based on the content of the document, and these could be stored in different manner. The text analysis system of a text-based computer storage system is analogous to the program classification system of the VCR embodiment of the present invention. However, there is a further analogy, in that the VCR could incorporate optical character recognition of text displayed in the program material, or directly receive text information as a part of a closed caption or videotext system. Thus, the VCR device of the present invention could recognize and classify programs based on textual cues, and make decisions based on these cues. This might also provide a simple method of discriminating program material, for example, if a commercial does not include close caption or Second Audio Program (SAP), while the desired program does, or vice versa, then a commercial could be discriminated from a program with very little computational expenditure. The smart screens may be implemented as follows. The controller may be, for example, a Macintosh ci computer, operating under Macintosh 7.0 operating system. The Hypercard 2.0 software may be used to implement the screen interface, which incorporates the above-described features, which is generally compatible with the Hyperpad software described above. HyperCard is mentioned due to its capabilities to reference external programs, thus allowing interfacing to various software and hardware devices. A more global scripting language, such as Frontier by UserLand Software Inc., may also be used, especially where low level hardware control of interfaced devices, such as a VCR, multimedia adapter, or the like is desired. Other scripting languages include versions of REXX, by IBM, available on many platforms. The input device is an Apple ADB mouse, and the output display is an 8 bit or 24 bit graphics color adapter connected to, e.g., a 14" color monitor.	2411	122:6-25 123:1-4 160:22-25 161:1-15

17

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
	In addition, various parameters concerning the use of the interface are stored in the computer's memory, and to a non-volatile mass storage device, such as a hard disk drive, or EEPROM or EPROM, as well as battery backed RAM could also be used.		
wherein said accessing means comprises at least one access device for enabling users to communicate with the computer system and access any of the items of available information;	A Genius™ Mouse was used as the input device in the prototype of the interface of the present invention. With the mouse, the user could view all of the choices at once on the display screen, and then make a selection from the items on the screen by moving the cursor and then pressing the left mouse button.	2410	128:1-6
wherein said user profile storing means stores a user profile for each user having access to the available items of information;	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101.	2406, 1701	107:14-19
wherein said relating means comprises means for ranking the likely degree of interest for each of the available items of information in accordance with a user profile;	means for correlating said characterized content of the program material with said determined viewer preference to produce a correlation index; and means for presenting the program material to the viewer, if said correlation index indicates a probable high correlation between said characterization of the program material and said viewer preference.

A user preference and event correlator 2412 produces an output relating to a relatedness of an event or prospective event and a user preference.

The interface would then search its databases regarding the user and broadcast listings to present a most likely choice, as well as all available alternatives. In this case, the user history is of little help, and is not used to predict. In other cases, the system would use its intelligence to "fill in the blanks", which could, of course, be rejected by the user.

wherein said control means receives a programming preference indicating a desired event from said input device which does not unambiguously define said event, and said control means monitors said data and causes the occurrence of the action when a correlation between said programming preference and said monitored data is above a predetermined threshold, indicating a likely occurrence of said desired event. | 2406, 2107, 2111, 2116, 2208 | 66:23-25 67:1-4 163:12-15 166:14-20 62:4-10 66:23-25 |
| wherein said presenting means presents the items of information to an access device in order of ranking and enabling a user to retrieve each item: | Menu options are preferably displayed in logical order or in their expected frequencies.... If all selections cannot be displayed at once, a hierarchical sequence is preferably used.

A Genius™ Mouse was used as the input device in the prototype of the interface of the present invention. With the mouse, the user could view all of the choices at once on the display screen, and then make a selection from the items on the screen by | 2405 | 93:12-25 94:1-10 128:1-6 180:18-25 210:23-25 211:1 |

18

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
	moving the cursor and then pressing the left mouse button. ... The interface would hierarchically present the available choices to the user, based on a probability of selection by the user.... The control 2601 also has an input device 2604, an on-screen display interface 2605, and a program memory 2606, for inputting instructions from a user, providing feedback to the user, and recording the result of the user interaction, respectively.		
wherein said feedback receiving means comprises means for enabling the user to indicate that user's interest in each retrieved item of information; and	It is a still further object of the present invention to provide a system, further comprising means for storing a characterization of the program material, further comprising feedback means for inputting a feedback signal from the viewer indicating a degree of agreement with said presented stored program material.	1705, 1704	68:21-25 69:1
wherein said updating means comprises means for updating the user's profile in response to indications of interest provided by the user.	wherein said feedback signal and said stored characterization are used by said viewer preference determining means to determine a new viewer preference.	1707	69:1-3
37. The apparatus of claim 36, wherein said ranking means ranks the available items of information for a user on the basis of at least one attribute pertaining to each item of information.	...Such an array processor may be suitable for parallel analysis of the image segment and classification of its attributes.	2207, 2208, 2409, 2407, 2414, 2413	172:23-25
38. The apparatus of claim 37, wherein said attribute is the contents of the item of information.	...As noted above, these processors may also serve other functions such as voice recognition for the interface, or extracting text from video transmissions and interpreting it.	2411, 2408, 2501, 2505, Fig. 19	173:12-14
39. The apparatus of claim 36, wherein said ranking means produces a formula which predicts the interest of a user in an item of information on the basis of at least one of a user profile and an attribute related to that	means for preprocessing the program material to produce a reduced data flow information signal retaining information relating to a character of the program material and eliminating data not necessary to characterize the program material; means for characterizing said information signal based on its content; means for correlating said characterized content of said information signal with said determined viewer preference to produce a correlation index; and means for presenting said stored program material to the viewer.	1704, 1703, 2116, 2208, 2304, 2305	68:2-20

19

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
item of information.	if said correlation index indicates a probable high correlation between said characterization of said information signal and said viewer preference. The system may also include a means for storing said information signal, wherein said characterizing means characterizes said stored information signal, and also a memory for storing the program material while said characterizing means produces characterized content and said correlating means produces said correlation index.		
41. The method according to claim 40, for providing information to users of a computer system, wherein:			
said content record storing step comprises storing items of information in an unstructured database within the computer system:	The use of on-line database listings may be used by the present interface to provide information to be downloaded and incorporated in the index entry of the library function, and may also be used as part of the intelligent determination of the content of a broadcast. This information may further be used for explicitly programming the interface by the user, in that the user may be explicitly presented with the available choices available from the database.

In the present invention, an area of the tape, preferable at the beginning of the tape or at multiple locations therein, is encoded to hold information relating to the contents of the tape. This encoding is shown in Fig. 19, which shows a data format for the information. This format has an identifying header 1901, a unique tape identifier 1902, an entry identifier 1903, a start time 1904, an end time 1905 and/or a duration 1906, a date code 1907, a channel code 1908, descriptive information 1909 of the described entry, which may include recording parameters and actual recorded locations on the tape, as well as a title or episode identifying information, which may be a fixed or variable length entry, optionally representative scenes 1910, which may be analog, digital, compressed, or related to the abstract characterizations of the scenes formed in the operation of the device. Finally, there are error correcting codes 1911 for the catalog entry, which may also include advanced block encoding schemes to reduce the affect of non-Gaussian correlated errors which may occur on video tape, transmission media and the like. | 1909, 1910, 2204, 2206, 2304, 2407, 250, 2611, 2607 | 186:16-23 181:12-25 182:1-4 |
| said user profile storing step comprises determining and storing user profiles for users of the computer system who have access to the items of information: | In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101. | 1701, 1702, 1803, 2509, 1806a | 107:14-19 |
| said receiving a request step comprises receiving a request from a user for access | Another object of the present invention provides a programmable information storage apparatus having a data input, for receiving data to be stored, said apparatus receiving instructions from a programmer and causing an action to occur on the receipt of data | 1501, 1602, 1705, 1706, | 63:8-25 170:1-10 |

20

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
to the stored information;	indicating an event, comprising: means for storing data from said data input; an input device, producing an input instruction signal; a control means for receiving said input instruction signal, and storing a program instruction associated with said input instruction signal, said control means storing sufficient program instructions to perform an action on the receipt of data from said data input indicating an event, said control means monitoring the data input to determine the occurrence of various events, comparing the determined events with the program instructions, and performing for storing the data said action on the occurrence of said event; A further example of the use of the advanced intelligent features of the present invention would be if the user wished to record, e.g., "live" musical performances. These occur on many "talk" shows, such as "Tonight Show with Johnny Carson" (NBC, 11:30 p.m. to 12:30 p.m., weeknights), "Saturday Night Live" (NBC 11:30 p.m. to 1:00 a.m. Saturday-Sunday), and other shows such as the "Grammy Awards". The interface, if requested to record such performances would seek to determine their occurrence, by, e.g., analyzing a broadcast schedule, by, e.g., interacting with the on-line database 2411, and the local database 2413.	1811, 2119, 2305, 2401, 2506, 2604	
said relating step comprises determining the user's likely degree of interest in items of information stored in said database, in accordance with that user's profile, and ranking the items of information in accordance with their determined degrees of interest; and	means for correlating said characterized content of the program material with said determined viewer preference to produce a correlation index; and means for presenting the program material to the viewer, if said correlation index indicates a probable high correlation between said characterization of the program material and said viewer preference. A user preference and event correlator 2412 produces an output relating to a relatedness of an event or prospective event and a user preference. wherein said control means receives a programming preference indicating a desired event from said input device which does not unambiguously define said event, and said control means monitors said data and causes the occurrence of the action when a correlation between said programming preference and said monitored data is above a predetermined threshold, indicating a likely occurrence of said desired event. means for correlating said characterized content of the program material with said determined viewer preference to produce a correlation index	1506, 1509, 1703, 2116, 2208, 2412	66:23-25 67:1-4 163:12-15 62:4-10 66:23-25
said presenting step comprises displaying the items of information with an indication of their relative rankings.	The interface would then search its databases regarding the user and broadcast listings to present a most likely choice, as well as all available alternatives...	1505, 1703, 2116, 2208, 2412	166:14-20
42. The method of	Menu options are preferably displayed in logical order or in their		93:12

21

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
claim 41. wherein said items of information are displayed in order of their ranking.	expected frequencies. Further, a number of most probable choices may be presented simultaneously or in sequence, in order to improve the probability that the user will be immediately or quickly presented with an acceptable choice. The interface would then search its databases regarding the user and broadcast listings to present a most likely choice, as well as all available alternatives. The use of on-line database listings may be used by the present interface to provide information to be downloaded and incorporated in the index entry of the library function, and may also be used as part of the intelligent determination of the content of a broadcast. This information may further be used for explicitly programming the interface by the user, in that the user may be explicitly presented with the available choices available from the database.		162:10-13 166:14 186:16-23
43. The method of claim 41. wherein the user profiles and the determined degree of interest in items of information are based upon at least one attribute associated with each item of information.	Figure 24 shows a system for correlating a user's preferences with a prospective or real-time occurrence of an event. The input device 2401, which is a remote control with a pointing device, such as a trackball, provides the user's input to the control 2402. The program is stored in a program memory 2403, after it is entered. The control 2402 controls a plant 2404, which is a VCR. The control also controls an on-screen programming interface 2405, through which the user interactively enters the program information. Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401. The prospective and real time event characterization unit 2407 uses any and all information available in order to determine the character of a signal input, which is a video signal, from the signal receiver 2408. A signal analyzer 2409 provides a preliminary analysis and characterization of the signal, which is input to the prospective and real time event characterization unit 2407. The prospective and real time event characterization unit 2407 also interacts and receives an input from a telecommunication module 2410, which in turn interacts and receives information from an on-line database 2411. A user preference and event correlator 2412 produces an output relating to a relatedness of an event or prospective event and a user preference. In the event of a high correlation or relatedness, the control 2402 determines that the event or prospective event is a likely or most likely predicted action. The prospective event discussed above refers to a scheduled event, which is likely to occur in the future. The characterization unit also has a local database 2413 for storing schedule information and the like.	2106, 2206, 2304, 2411, 2412, 2505, 2607	162:17-25 163:1-20
44. The method of claim 43, wherein said	...Such an array processor may be suitable for parallel analysis of the image segment and classification of its attributes.	2411, 2408,	172:23-25

22

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
attribute is the content of the item of information.		2507, 2505, Fig. 19	
45. The method of claim 41, further including the steps of selecting an item of information from those which are displayed, providing an indication of the user's actual interest in the selected item of information, and storing the user's indicated interest.	It is a still further object of the present invention to provide a system, further comprising means for storing a characterization of the program material, further comprising feedback means for inputting a feedback signal from the viewer indicating a degree of agreement with said presented stored program material, wherein said feedback signal and said stored characterization are used by said viewer preference determining means to determine a new viewer preference.	1707	68:21-25 69:1-3
46. The method of claim 41, wherein the likely degree of interest is determined for all of the items of information stored in said database in response to receipt of a user's request for access.	The interface would then search its databases regarding the user and broadcast listings to present a most likely choice, as well as all available alternatives.	2208	166:14-16
48. The method of claim 47, for providing a user with access to selected ones of a plurality of target objects and sets of target object characteristics that are accessible via an electronic storage media, where said users are connected via user terminals and data communication connections to a target server system which accesses said electronic storage media, wherein:	Figure 24 shows a system for correlating a user's preferences with a prospective or real-time occurrence of an event. The input device 2401, which is a remote control with a pointing device, such as a trackball, provides the user's input to the control 2402. The program is stored in a program memory 2403, after it is entered. The control 2402 controls a plant 2404, which is a VCR. The control also controls an on-screen programming interface 2405, through which the user interactively enters the program information. Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401. The prospective and real time event characterization unit 2407 uses any and all information available in order to determine the character of a signal input, which is a video signal, from the signal receiver 2408. A signal analyzer 2409 provides a preliminary analysis and characterization of the signal, which is input to the prospective and real time event characterization unit 2407. The prospective and real time event characterization unit 2407 also interacts and receives an input from a telecommunication module 2410, which in turn interacts and receives information from an on-line database 2411. A user preference and event correlator 2412 produces an output relating to a relatedness of an event or prospective event and a user	Fig. 19, 2005, 2210, 2503

2411
2410,
2408

2410 | 162:17-25 163:1-20 115:23-25 116:1-4 |

23

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
	preference. In the event of a high correlation or relatedness, the control 2402 determines that the event or prospective event is a likely or most likely predicted action. The prospective event discussed above refers to a scheduled event, which is likely to occur in the future. The characterization unit also has a local database 2413 for storing schedule information and the like. Thus, one embodiment of the device may incorporate a memory for storing a program, before being transferred to a permanent storage facility, such as tape. Such a memory may include a hard disk drive, magnetic tape loop, a rewritable optical disk drive, or semiconductor memories, including such devices as wafer scale memory devices. This is shown diagrammatically as the intermediate storage 2210 of Fig. 22.		
said automatically generating step generates at least one user target profile interest summary for a user at a user terminal, each of said user target profile interest summary being indicative of ones of said target objects and sets of target object characteristics accessed by said user; and	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101. The system next must determine what function the user wishes to perform. In this regard, if more than one user has access to the system, the user identifies himself to the interface, in a user identification step 1701 or an analogous action, which may be a coded entry, or a selection from the menu. If the interface has voice recognition capability, then the user may be recognized by his voice pattern, or merely by stating his name. The interface then accesses the memory for a profile of the past use of the machine by the user, which may include the entire prior history, relevant abstracts of the history, or derived user preferences, as shown in the personalized startup based on user profile step 1702, which information is also stored and used in the past user history determining element 2107. These choices differ in the amount of storage necessary in order to retain the desired information. Having demonstrated a preference for "Married with Children", the interface would then characterize the program. This would include, for example, a characterization of the soundtrack, the background, foreground, actors and actresses present, credits, etc. The interface would then attempt to correlate the features present in the reference selection with other available selections. This comparison may be with a preformed database, providing immediate results, or prospectively, after entry of the reference selection....	Fig. 21, 2107	107:14-19 165:7-21 167:13-21
said storing step stores said at least one user target profile interest summary in a memory.	When the programming is completed, the interface must then update its user database, prompt the user to set the VCR to record, by, e.g., inserting a blank or recordable tape.	1707	167:2-4
49. The method of claim 48, further comprising the steps of:			
enabling said user to	Thus, if the user has only used the VCR to record, e.g., the NBC	Figs.	165:22-25

24

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
access said plurality of target objects and sets of target object characteristics stored on said electronic storage media via said user target profile interest summaries.	11 o'clock news, i.e., record all days from 11:00 p.m. to 11:30 p.m. on NBC, in the past, the most likely current predicted choice would be the NBC 11 o'clock news. If the interface were to present a number of choices, having lower probability, then it would interpret the recording history to be "news" based on a database of broadcast information. Therefore, a prediction of lower probability would be ABC or CBS news at, e.g., 11:00 p.m., and the NBC news at, e.g., 5:00 p.m. Thus, these three choices would be initially presented to the user, along with a menu selection to reject these predicted choices. In this case, the user would select the "reject" selection, and would be presented with a next predicted desired menu choice....	15, 17, 21, 2305	166:1-9
said step of enabling access comprising:			
correlating said user target profile interest summaries, generated for said user, with target profiles generated for said plurality of target objects and sets of target object characteristics to identify ones of said plurality of target objects and sets of target object characteristics stored on said electronic storage media that are likely to be of interest to said user;	A user preference and event correlator 2412 produces an output relating to a relatedness of an event or prospective event and a user preference.	2412	163:12-15
transmitting a list, that identifies at least one of said identified ones of said plurality of target objects and sets of target object characteristics, to said user; and	Thus, if the user has only used the VCR to record, e.g., the NBC 11 o'clock news, i.e., record all days from 11:00 p.m. to 11:30 p.m. on NBC, in the past, the most likely current predicted choice would be the NBC 11 o'clock news. If the interface were to present a number of choices, having lower probability, then it would interpret the recording history to be "news" based on a database of broadcast information. Therefore, a prediction of lower probability would be ABC or CBS news at, e.g., 11:00 p.m., and the NBC news at, e.g., 5:00 p.m. Thus, these three choices would be initially presented to the user, along with a menu selection to reject these predicted choices.	2405	165:22-25 166:1-7
providing access to a selected one of said plurality of target objects and sets of target object characteristics stored on said electronic storage media in response to said user selecting an item from	In this case, the user would select the "reject" selection, and would be presented with a next predicted desired menu choice. Since the user history, in this case, does not provide for another choice of high probability, the user would be prompted to explicitly choose the program sequence by day, time, channel, and duration. The user would then enter the starting time for recording according to the methods described above.... The user then selects one of the available choices, which would complete the programming sequence. If no database of broadcasts is available, then the user must then explicitly define all parameters	Figs. 15, 17	166:7-25 167:1-2

25

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
said list:	of the broadcast.		
said step of providing access further comprising:			
transmitting data, in response to said user activating said user terminal to identify said selected item on said list, indicative of said user's selection of said selected item from said user terminal to said target server via a one of said data communication connections:	The present invention also allows encryption and decryption of material, much as the Videocipher series systems from General Instruments, and the fractal enciphering methods of EMC2 and Iterated Systems, Inc. The present invention, however, is not limited to broadcasts, and instead could implement a system for both broadcasts and prerecorded materials. In the case of copying from one tape to another, such a system could not only provide the herein mentioned library functions of the present invention, it could also be used to aid in copy protection, serial copy management, and a pay-per-view royalty collection system. Such a system could be implemented by way of a telecommunication function incorporated in the device, shown as block 1808 of Fig. 18, or an electronic tag which records user activity of a tape or the like. A royalty fee, etc., could automatically be registered to the machine either by telecommunication or registry with the tag, allowing new viewer options to be provided as compared with present VCR's. For example, an encrypted tape or other source material (so that special playback equipment need be used, and a usage registered), used with this device, could be decrypted by a decryption key available by telecommunication with a communication center, remote from the user, in a decryption unit, shown schematically as the decrypt unit 1806a of Fig. 18. During acquisition of the key, a VCR device of an embodiment of the present invention would indicate its identity, and an account is charged a fee for such use. Such a system could also be used for controlled access software, for example for a computer, wherein a remote account is charged for use of the software.... The present invention is advantageous in this application because it provides an advanced user interface for creating a program, and it assists the user in selecting from the available programs, without having presented the user with a detailed description of the programs, i.e., the user may select the choice based on characteristics rather than literal description.... The user may make a viewing decision based on the recommendation of the interface system, or may review the decision based on the title or description of the program.	2106, 2118, 2410	90:23-25 91:1-25 92:1-22
retrieving, in response to receipt of said data from said user terminal, a one of a target object and set of target object characteristics identified by said selected item from said electronic storage media; and	In order to retrieve an entry, the user interacts with the same interface that is used for programming the recorder functions, however, the user selects different menu selections, which guide him to the available selections. This function, instead of focusing mainly on the particular user's history in order to predict a selection, would analyze the entire library, regardless of which user instituted the recording.	2408, 2411, 2413	184:3-9
transmitting said retrieved one of said	Another object of the present invention provides a system for presenting a program to a viewer, comprising...	2408, 2405	66:15-16 66:19-20

26

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
target object and set of target object characteristics to said user terminal for display thereon to said user.	means for receiving the program material from said source;... means for presenting the program material to the viewer, if said correlation index indicates a probable high correlation between said characterization of the program material and said viewer preference. The present invention is advantageous in this application because it provides an advanced user interface for creating a program, and it assists the user in selecting from the available programs, without having presented the user with a detailed description of the programs. i.e., the user may select the choice based on characteristics rather than literal description.		67:1-4 92:10-16
said step of automatically generating comprising:			
automatically updating said user target profile interest summary for said user as a function of said target objects and sets of target object characteristics retrieved by said user.	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101. Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401.	2116, 2208, 1707	107:14-19 162:25 163:1-3
50. The method of claim 48, wherein said automatically generating step comprises:			
creating a customer profile, said customer profile indicating the respective customer's preferences for data;	Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401.	1703, 2106, 2116, 2308	162:25 163:1-3
monitoring a history of data objects accessed by the customer; and	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101.	2107, 2406	107:14-19
automatically updating the customer profile in accordance with the content profiles accessed by the customer to automatically update the customer profile to represent the customer's preferences.	When the programming is completed, the interface must then update its user database...	2107, 2406	167:2-3
51. The method of	This presently described system differs from normal pay-per-	1505	92:3-6

27

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
claim 47, wherein said method is for scheduling customer access to data from a plurality of data sources.	view techniques because it allows, in certain instances, the user to schedule the viewing. The prospective event discussed above refers to a scheduled event, which is likely to occur in the future. The characterization unit also has a local database 2413 for storing schedule information and the like.		163:17-20
further comprising the step of creating content profiles for each data source of said data, said content profiles indicating the degree of content of said predetermined characteristics in data from each data source;	Another object of the present invention provides a system for presenting a program to a viewer, comprising: a source of program material; means for determining a viewer preference; means for receiving the program material from said source; **means for characterizing the program material based on its content;** **means for correlating said characterized content of the program material with said determined viewer preference to produce a correlation index; and** means for presenting the program material to the viewer, if said correlation index indicates a probable high correlation between said characterization of the program material and said viewer preference.	1909, Fig. 22, 2304, 2407	66:15-25 67:1-4
wherein:			
said customer profile creating step comprises creating at least one customer profile for each eligible recipient of said data, said customer profile indicating the customer's preferences for data having predetermined characteristics;	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101.	1702, 1703	107:14-19
said monitoring step comprises monitoring which data sources are actually accessed by each recipient; and	Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401.	1707, 2107	162:25 163:1-3
said updating step comprises updating, without input from each customer, each customer profile in accordance with the content profiles of the data sources actually accessed by that customer to automatically update each customer's actual preferences for said predetermined	When the programming is completed, the interface must then update its user database... The interface then accesses the memory for a profile of the past use of the machine by the user, which may include the entire prior history, relevant abstracts of the history, or derived user preferences, as shown in the personalized startup based on user profile step 1702, which information is also stored and used in the past user history determining element 2107.	Figs. 21, 22	167:2-3 165:14-19

28

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
characteristics.			
52. The method of claim 47, wherein said method is for scheduling customer access to video programs.	The present invention is advantageous in this application because it provides an advanced user interface for creating a program, and it assists the user in selecting from the available programs, without having presented the user with a detailed description of the programs, i.e., the user may select the choice based on characteristics rather than literal description.	1505	92:10-16
further comprising the step of creating content profiles for each video program available for viewing, said content profiles indicating the degree of content of said predetermined characteristics in each video program;	The present invention incorporates an intelligent program recognition and characterization system, making use of any of the available cues, which allows an intelligent determination of the true nature of the broadcast and therefore is able to make a determination of whether parameters should be deemed met even with an inexact match to the specified parameters. means for characterizing the program material based on its content; means for correlating said characterized content of the program material with said determined viewer preference to produce a correlation index;	1909, 2206, 2304, 2407, 2505, 2507	53:21-25 54:1-2 66:21-25
wherein:			
said customer profile creating step comprises creating at least one customer profile for each customer of said video programs, said customer profile indicating the customer's preferences for predetermined characteristics of the video programs;	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101. The controller 1806 of Fig. 18 thereafter uses a stored profile of the identified user in controlling the interaction with the user, as shown in block 1702 of Fig. 17, from information stored in the database 1807 of Fig. 18 of the present invention.	1702	107:14-19 88:23-25 89:1-2
said monitoring step comprises monitoring which video programs are actually viewed by each customer; and	It is a still further object of the present invention to provide a system, further comprising means for storing a characterization of the program material, further comprising feedback means for inputting a feedback signal from the viewer indicating a degree of agreement with said presented stored program material, wherein said feedback signal and said stored characterization are used by said viewer preference determining means to determine a new viewer preference. In the case of encrypted program source material, it is particularly advantageous if the characterization of the program occurs without charging the account of the user for such characterization, and only charging the account if the program is viewed by the user. The user may make a viewing decision based on the recommendation of the interface system, or may review the decision based on the title or description of the program.	1707, 2107	68:21-25 69:1-3 92:16-22 199:19-22 165:14-19

29

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
	However, because the present control 2402 is intelligent and has pattern recognition capability, in addition to full data integration from all available data sources, it may execute advanced control functions. The interface then accesses the memory for a profile of the past use of the machine by the user, which may include the entire prior history, relevant abstracts of the history, or derived user preferences, as shown in the personalized startup based on user profile step 1702, which information is also stored and used in the past user history determining element 2107.		
said updating step comprises updating, without input from each customer, each customer profile in accordance with the content profiles of the video programs actually viewed by that customer to automatically update each customer's actual preferences for said predetermined characteristics.	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101. Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401.	Figs. 21, 22	107:14-19 162:25 163:1-3
53. The method of claim 52, comprising the further steps of receiving customer identity information and determining from said customer identity information which customer profile to update in said updating step.	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101. The system next must determine what function the user wishes to perform. In this regard, if more than one user has access to the system, the user identifies himself to the interface, in a user identification step 1701 or an analogous action, which may be a coded entry, or a selection from the menu. If the interface has voice recognition capability, then the user may be recognized by his voice pattern, or merely by stating his name. The interface then accesses the memory for a profile of the past use of the machine by the user, which may include the entire prior history, relevant abstracts of the history, or derived user preferences, as shown in the personalized startup based on user profile step 1702, which information is also stored and used in the past user history determining element 2107. These choices differ in the amount of storage necessary in order to retain the desired information. Thus, as shown in Fig. 17, the user identifies himself to the controller in block 1701. The controller 1806 of Fig. 18 thereafter uses a stored profile of the identified user in controlling the interaction with the user, as shown in block 1702 of Fig. 17, from information stored in the database 1807 of Fig. 18 of the present invention. A further example of the use of the advanced intelligent features of the present invention would be if the user	1701	107:14-19 165:7-21 88:21-25 170:1-25 171:1-9

30

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
	wished to record, e.g., "live" musical performances. These occur on many "talk" shows, such as "Tonight Show with Johnny Carson" (NBC, 11:30 p.m. to 12:30 p.m., weeknights), "Saturday Night Live" (NBC 11:30 p.m. to 1:00 a.m. Saturday; Sunday), and other shows such as the "Grammy Awards". The interface, if requested to record such performances would seek to determine their occurrence, by, e.g., analyzing a broadcast schedule, by, e.g., interacting with the on-line database 2411, and the local database 2413. When the interface determines with high probability that a broadcast will occur, it then monitors the channel(s) at the indicated time(s), through the plurality of tuners 2502. In the case of pay-per-view systems and the like, which incorporate encrypted signals, an encryption/decryption unit 2509 is provided. This unit also allows encryption of material. During the monitoring, the interface system acquires the audio and video information being broadcast, through the signal receiver 2408, and correlates this information with a known profile of a "live musical performance", in the preference and event correlator 2412. This must be distinguished from music as a part of, e.g., a soundtrack, as well as "musicals" which are part of movies and recorded operas, if these are not desired. Further, music videos may also be undesirable. When the correlation is high between the broadcast and a reference profile of a "live musical performance", the system selects the broadcast for retention. In this case, the information in the intermediate storage 2503 is transferred to the plant 2507, which includes a permanent storage device 2508. The intermediate storage 2503 medium is used to record a "buffer" segment, so that none of the broadcast is lost while the system determines the nature of the broadcast. This, of course, allows an extended period for the determination of the type of broadcast, so that, while real-time recognition is preferred, it is not absolutely necessary in order to gain the advantages of the present invention.		
54. The method of claim 47, wherein said method is for scheduling customer access to data from a plurality of data sources, wherein:	Thus, as shown in Fig. 17, the user identifies himself to the controller in block 1701. The controller 1806 of Fig. 18 thereafter uses a stored profile of the identified user in controlling the interaction with the user, as shown in block 1702 of Fig. 17, from information stored in the database 1807 of Fig. 18 of the present invention.	1505	88:21-25 89:1-2
said customer profile creating step comprises creating a customer profile for each customer of said plurality of data sources, said customer profile indicating said customer's preferences for predetermined characteristics of the data sources;	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101.	2502, 1909, Fig. 22, 2304, 2407	107:14-19
said monitoring step	The intelligence of the device of the present invention is not	1707,	107:20-25

31

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
comprises monitoring which data sources are actually accessed by each customer; and	limited by the foregoing examples: the user could also input characteristics of the program material that are desired, and characteristics of that program material which is not desired. The device would then, over time, monitor various broadcast choices, and determine which most closely match the criterion, and thus be selected.	2107	108:1
said updating step comprises updating each customer profile to reflect the frequency of selection of the data sources by customers with customer profiles substantially similar to said each customer profile.	It has been found that in the case of novice users, a greater number of simple instructions may be more quickly and easily input rather than a potentially fewer number of a larger set of more complex instructions. It has further been found that, even if presented with a set of instructions which will allow a program to be entered with a fewer number of inputs, a novice user may choose to input the program using the simple instructions exclusively, thus employing an increased number of instructions and being delayed by an increased search time for those instructions that are used, from the larger set.

One goal of the interface of the present invention is to minimize Tacquire. By Card's model, the execution time is the time, tj, for each of these operators j weighted by the frequency, nj, with which they occur, plus the total system response time, TR, to the steps performed by the user....

Thus, if the user has only used the VCR to record, e.g., the NBC 11 o'clock news, i.e., record all days from 11:00 p.m. to 11:30 p.m. on NBC, in the past, the most likely current predicted choice would be the NBC 11 o'clock news.

The interface of the present invention would study the initial behavior of the user to determine the expected user level of that user.

The most frequently used choices preferably should be displayed, as the default setting.

The system's logic should reflect the users' expectations, offer visual clues and feedback, and stay within human memory limits. | Figs. 21, 22 | 89:2-11 132:20-25 165:22-25 106:14-16 85:1-2 95:2-4 |
| 56. The apparatus according to claim 55, for providing a user with access to selected ones of a plurality of target objects and sets of target object characteristics that are accessible via an electronic storage media, where said users are connected via user terminals and data communication connections to a target server system which | Figure 24 shows a system for correlating a user's preferences with a prospective or real-time occurrence of an event. The input device 2401, which is a remote control with a pointing device, such as a trackball, provides the user's input to the control 2402. The program is stored in a program memory 2403, after it is entered. The control 2402 controls a plant 2404, which is a VCR. The control also controls an on-screen programming interface 2405, through which the user interactively enters the program information. Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401. The prospective and real time event characterization unit 2107 uses any and all information available in order to determine the character of a signal input, which is a video signal, from the signal receiver 2408. A signal analyzer 2409 provides a preliminary analysis and | Fig. 19, 2005, 2210, 2503

2411 2410, 2408

2410 | 162:17-25 163:1-20 115:23-25 116:1-4 |

32

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
accesses said electronic storage media, comprising:	characterization of the signal, which is input to the prospective and real time event characterization unit 2407. The prospective and real time event characterization unit 2407 also interacts and receives an input from a telecommunication module 2410, which in turn interacts and receives information from an on-line database 2411. A user preference and event correlator 2412 produces an output relating to a relatedness of an event or prospective event and a user preference. In the event of a high correlation or relatedness, the control 2402 determines that the event or prospective event is a likely or most likely predicted action. The prospective event discussed above refers to a scheduled event, which is likely to occur in the future. The characterization unit also has a local database 2413 for storing schedule information and the like. Thus, one embodiment of the device may incorporate a memory for storing a program, before being transferred to a permanent storage facility, such as tape. Such a memory may include a hard disk drive, magnetic tape loop, a rewritable optical disk drive, or semiconductor memories, including such devices as wafer scale memory devices. This is shown diagrammatically as the intermediate storage 2210 of Fig. 22.		
means for automatically generating at least one user target profile interest summary for a user at a user terminal, each of said user target profile interest summaries being indicative of ones of said target objects and sets of target object characteristics accessed by said user; and	Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401.	Figs. 15, 17, 21, 2305	162:25 163:1-3
means for storing said at least one user target profile interest summary in a memory.	The interface then accesses the memory for a profile of the past use of the machine by the user, which may include the entire prior history, relevant abstracts of the history, or derived user preferences, as shown in the personalized startup based on user profile step 1702, which information is also stored and used in the past user history determining element 2107. These choices differ in the amount of storage necessary in order to retain the desired information.	1707	165:14-21
57. The apparatus of claim 56, further comprising:			
means for enabling said user to access said plurality of target objects and sets of target object	Figure 24 shows a system for correlating a user's preferences with a prospective or real-time occurrence of an event. The input device 2401, which is a remote control with a pointing device, such as a trackball, provides the user's input to the control 2402. The program is stored in a program memory 2403, after it is	Figs. 15, 17, 21, 2305	162:17-25 163:1-20 115:23-25 116:1-4 181:12-25

33

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
characteristics stored on said electronic storage media via said user target profile interest summaries:	entered. The control 2402 controls a plant 2404, which is a VCR. The control also controls an on-screen programming interface 2405, through which the user interactively enters the program information. Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401. The prospective and real time event characterization unit 2407 uses any and all information available in order to determine the character of a signal input, which is a video signal, from the signal receiver 2408. A signal analyzer 2409 provides a preliminary analysis and characterization of the signal, which is input to the prospective and real time event characterization unit 2407. The prospective and real time event characterization unit 2407 also interacts and receives an input from a telecommunication module 2410, which in turn interacts and receives information from an on-line database 2411. A user preference and event correlator 2412 produces an output relating to a relatedness of an event or prospective event and a user preference. In the event of a high correlation or relatedness, the control 2402 determines that the event or prospective event is a likely or most likely predicted action. The prospective event discussed above refers to a scheduled event, which is likely to occur in the future. The characterization unit also has a local database 2413 for storing schedule information and the like.

Thus, one embodiment of the device may incorporate a memory for storing a program, before being transferred to a permanent storage facility, such as tape. Such a memory may include a hard disk drive, magnetic tape loop, a rewritable optical disk drive, or semiconductor memories, including such devices as wafer scale memory devices. This is shown diagrammatically as the intermediate storage 2210 of Fig. 22.

In the present invention, an area of the tape, preferable at the beginning of the tape or at multiple locations therein, is encoded to hold information relating to the contents of the tape. This encoding is shown in Fig. 19, which shows a data format for the information. This format has an identifying header 1901, a unique tape identifier 1902, an entry identifier 1903, a start time 1904, an end time 1905 and/or a duration 1906, a date code 1907, a channel code 1908, descriptive information 1909 of the described entry, which may include recording parameters and actual recorded locations on the tape, as well as a title or episode identifying information, which may be a fixed or variable length entry, optionally representative scenes 1910, which may be analog, digital, compressed, or related to the abstract characterizations of the scenes formed in the operation of the device. | | |
| said means for enabling access comprising: | | | |
| means for correlating said user target profile | A user preference and event correlator 2412 produces an output relating to a relatedness of an event or prospective event and a | 2412 | 163:12-15 |

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
interest summaries, generated for said user, with target profiles generated for said plurality of target objects and sets of target object characteristics to identify ones of said plurality of target objects and sets of target object characteristics stored on said electronic storage media that are likely to be of interest to said user;	user preference.		
means for transmitting a list, that identifies at least one of said identified ones of said plurality of target objects and sets of target object characteristics, to said user; and	Thus, if the user has only used the VCR to record, e.g., the NBC 11 o'clock news, i.e., record all days from 11:00 p.m. to 11:30 p.m. on NBC, in the past, the most likely current predicted choice would be the NBC 11 o'clock news. If the interface were to present a number of choices, having lower probability, then it would interpret the recording history to be "news" based on a database of broadcast information. Therefore, a prediction of lower probability would be ABC or CBS news at, e.g., 11:00 p.m., and the NBC news at, e.g., 5:00 p.m. Thus, these three choices would be initially presented to the user, along with a menu selection to reject these predicted choices.	2405	165:22-25 166:1-7
means for providing access to a selected one of said plurality of target objects and sets of target object characteristics stored on said electronic storage media in response to said user selecting an item from said list.	In this case, the user would select the "reject" selection, and would be presented with a next predicted desired menu choice. Since the user history, in this case, does not provide for another choice of high probability, the user would be prompted to explicitly choose the program sequence by day, time, channel, and duration. The user would then enter the starting time for recording according to the methods described above.... The user then selects one of the available choices, which would complete the programming sequence. If no database of broadcasts is available, then the user must then explicitly define all parameters of the broadcast.	Figs. 15, 17	166:7-25 167:1-2
said means for providing access comprising:			
means for transmitting data, in response to said user activating said user terminal to identify said selected item on said list, indicative of said user's selection of said selected item from said user terminal to said target server via a one of said data	The present invention also allows encryption and decryption of material, much as the Videocipher series systems from General Instruments, and the fractal enciphering methods of EMC2 and Iterated Systems, Inc. The present invention, however, is not limited to broadcasts, and instead could implement a system for both broadcasts and prerecorded materials. In the case of copying from one tape to another, such a system could not only provide the herein mentioned library functions of the present invention, it could also be used to aid in copy protection, serial copy management, and a pay-per-view royalty collection system. Such a system could be implemented by way of a telecommunication function incorporated in the device, shown as	2106, 2118, 2410	90:23-25 91:1-25 92:1-22

35

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
communication connections:	block 1808 of Fig. 18, or an electronic tag which records user activity of a tape or the like. A royalty fee, etc., could automatically be registered to the machine either by telecommunication or registry with the tag, allowing new viewer options to be provided as compared with present VCR's. For example, an encrypted tape or other source material (so that special playback equipment need be used, and a usage registered), used with this device, could be decrypted by a decryption key available by telecommunication with a communication center, remote from the user, in a decryption unit, shown schematically as the decrypt unit 1806a of Fig. 18. During acquisition of the key, a VCR device of an embodiment of the present invention would indicate its identity, and an account is charged a fee for such use. Such a system could also be used for controlled access software, for example for a computer, wherein a remote account is charged for use of the software.... The present invention is advantageous in this application because it provides an advanced user interface for creating a program, and it assists the user in selecting from the available programs, without having presented the user with a detailed description of the programs, i.e., the user may select the choice based on characteristics rather than literal description.... The user may make a viewing decision based on the recommendation of the interface system, or may review the decision based on the title or description of the program.		
means for retrieving, in response to receipt of said data from said user terminal, a target object identified by said selected item from said electronic storage media; and	In order to retrieve an entry, the user interacts with the same interface that is used for programming the recorder functions, however, the user selects different menu selections, which guide him to the available selections. This function, instead of focusing mainly on the particular user's history in order to predict a selection, would analyze the entire library, regardless of which user instituted the recording.	2408, 2411, 2413	184:3-9
means for transmitting said retrieved target object to said user terminal for display thereon to said user:	Another object of the present invention provides a system for presenting a program to a viewer, comprising... means for receiving the program material from said source:... means for presenting the program material to the viewer, if said correlation index indicates a probable high correlation between said characterization of the program material and said viewer preference. The present invention is advantageous in this application because it provides an advanced user interface for creating a program, and it assists the user in selecting from the available programs, without having presented the user with a detailed description of the programs, i.e., the user may select the choice based on characteristics rather than literal description.	2408, 2405	66:15-16 66:19-20 67:1-4 92:10-16
said means for automatically generating comprising:			
means for automatically updating said user target profile interest summary for	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less	2116, 2208, 1707	107:14-19 162:25 163:1-3

36

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
said user as a function of said target objects and sets of target object characteristics retrieved by said user.	familiar to the user, through the current user level output 2101. Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401.		
59. The system according to claim 58, for scheduling customer access to data from a plurality of data sources, further comprising:	This presently described system differs from normal pay-per-view techniques because it allows, in certain instances, the user to schedule the viewing. The prospective event discussed above refers to a scheduled event, which is likely to occur in the future. The characterization unit also has a local database 2413 for storing schedule information and the like.	1505	92:3-6 163:17-20
content profiles for each data source of said data, said content profiles indicating the degree of content of said predetermined characteristics in data from each data source;	Another object of the present invention provides a system for presenting a program to a viewer, comprising: a source of program material; means for determining a viewer preference; means for receiving the program material from said source; means for characterizing the program material based on its content; means for correlating said characterized content of the program material with said determined viewer preference to produce a correlation index; and means for presenting the program material to the viewer, if said correlation index indicates a probable high correlation between said characterization of the program material and said viewer preference.	1090, Fig. 22, 2304, 2407	66:15-25 67:1-4
wherein:			
at least one customer profile for each eligible recipient of said data is provided, said customer profile indicating the customer's preferences for data having predetermined characteristics;	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101.	1702, 1703	107:14-19
said monitoring means monitors which data sources are actually accessed by each recipient; and	Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401.	1707, 2107	162:25 163:1-3
said updating means updates, without input from each customer, each customer profile in accordance with the content profiles of the data sources actually accessed by that	When the programming is completed, the interface must then update its user database... The interface then accesses the memory for a profile of the past use of the machine by the user, which may include the entire prior history, relevant abstracts of the history, or derived user preferences, as shown in the personalized startup based on user profile step 1702, which information is also stored and used in	Figs. 21, 22	167:2-3 165:14-19

37

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
customer to automatically update each customer's actual preferences for said predetermined characteristics.	the past user history determining element 2107.		
60. The system according to claim 58, for scheduling customer access to video programs received from a video head end, further comprising:	The present invention is advantageous in this application because it provides an advanced user interface for creating a program, and it assists the user in selecting from the available programs, without having presented the user with a detailed description of the programs, i.e., the user may select the choice based on characteristics rather than literal description.	1505	92:10-16
content profiles for each video program available for viewing, said content profiles indicating the degree of content of said predetermined characteristics in each video program;	The present invention incorporates an intelligent program recognition and characterization system, making use of any of the available cues, which allows an intelligent determination of the true nature of the broadcast and therefore is able to make a determination of whether parameters should be deemed met even with an inexact match to the specified parameters. means for characterizing the program material based on its content: means for correlating said characterized content of the program material with said determined viewer preference to produce a correlation index;	1909, 2206, 2304, 2407, 2505, 2507	53:21-25 54:1-2 66:21-25
wherein:			
at least one customer profile for each customer of said video programs is provided, said customer profile indicating the customer's preferences for predetermined characteristics of the video programs;	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101. The controller 1806 of Fig. 18 thereafter uses a stored profile of the identified user in controlling the interaction with the user, as shown in block 1702 of Fig. 17, from information stored in the database 1807 of Fig. 18 of the present invention.	1702	107:14-19 88:23-25 89:1-2
said means for monitoring monitors which video programs are actually viewed by each customer; and	It is a still further object of the present invention to provide a system, further comprising means for storing a characterization of the program material, further comprising feedback means for inputting a feedback signal from the viewer indicating a degree of agreement with said presented stored program material, wherein said feedback signal and said stored characterization are used by said viewer preference determining means to determine a new viewer preference. In the case of encrypted program source material, it is particularly advantageous if the characterization of the program occurs without charging the account of the user for such characterization, and only charging the account if the program is viewed by the user. The user may make a viewing decision based on the recommendation of the interface system, or may	1707, 2107	68:21-25 69:1-3 92:16-22 199:19-22 165:14-19

38

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
	review the decision based on the title or description of the program. However, because the present control 2402 is intelligent and has pattern recognition capability, in addition to full data integration from all available data sources, it may execute advanced control functions. The interface then accesses the memory for a profile of the past use of the machine by the user, which may include the entire prior history, relevant abstracts of the history, or derived user preferences, as shown in the personalized startup based on user profile step 1702, which information is also stored and used in the past user history determining element 2107.		
said means for updating updates, without input from each customer, each customer profile in accordance with the content profiles of the video programs actually viewed by that customer to automatically update each customer's actual preferences for said predetermined characteristics.	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101. Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401.	Figs. 21, 22	107:14-19 162:25 163:1-3
61. The system as in claim 60, further comprising:			
means for transmitting said content profiles to each customer along with electronic program guide data for upcoming television viewing periods.	The prospective and real time event characterization unit 2407 also interacts and receives an input from a telecommunication module 2410, which in turn interacts and receives information from an on-line database 2411.	2411, 2410	163:9-12
62. The system as in claim 60, further comprising means for inputting customer identity information and for determining from said customer identity information which customer profile to update with said updating means.	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101. The system next must determine what function the user wishes to perform. In this regard, if more than one user has access to the system, the user identifies himself to the interface, in a user identification step 1701 or an analogous action, which may be a coded entry, or a selection from the menu. If the interface has voice recognition capability, then the user may be recognized by	1701, 1707	107:14-19 165:7-21 88:21-25 170:1-25 171:1-9

39

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
	his voice pattern, or merely by stating his name. The interface then accesses the memory for a profile of the past use of the machine by the user, which may include the entire prior history, relevant abstracts of the history, or derived user preferences, as shown in the personalized startup based on user profile step 1702, which information is also stored and used in the past user history determining element 2107. These choices differ in the amount of storage necessary in order to retain the desired information. Thus, as shown in Fig. 17, the user identifies himself to the controller in block 1701. The controller 1806 of Fig. 18 thereafter uses a stored profile of the identified user in controlling the interaction with the user, as shown in block 1702 of Fig. 17, from information stored in the database 1807 of Fig. 18 of the present invention. A further example of the use of the advanced intelligent features of the present invention would be if the user wished to record, e.g., "live" musical performances. These occur on many "talk" shows, such as "Tonight Show with Johnny Carson" (NBC, 11:30 p.m. to 12:30 p.m., weeknights), "Saturday Night Live" (NBC 11:30 p.m. to 1:00 a.m. Saturday, Sunday), and other shows such as the "Grammy Awards". The interface, if requested to record such performances would seek to determine their occurrence, by, e.g., analyzing a broadcast schedule, by, e.g., interacting with the on-line database 2411, and the local database 2413. When the interface determines with high probability that a broadcast will occur, it then monitors the channel(s) at the indicated time(s), through the plurality of tuners 2502. In the case of pay-per-view systems and the like, which incorporate encrypted signals, an encryption/decryption unit 2509 is provided. This unit also allows encryption of material. During the monitoring, the interface system acquires the audio and video information being broadcast, through the signal receiver 2408, and correlates this information with a known profile of a "live musical performance", in the preference and event correlator 2412. This must be distinguished from music as a part of, e.g., a soundtrack, as well as "musicals" which are part of movies and recorded operas, if these are not desired. Further, music videos may also be undesirable. When the correlation is high between the broadcast and a reference profile of a "live musical performance", the system selects the broadcast for retention. In this case, the information in the intermediate storage 2503 is transferred to the plant 2507, which includes a permanent storage device 2508. The intermediate storage 2503 medium is used to record a "buffer" segment, so that none of the broadcast is lost while the system determines the nature of the broadcast. This, of course, allows an extended period for the determination of the type of broadcast, so that, while real-time recognition is preferred, it is not absolutely necessary in order to gain the advantages of the present invention.		
63. The system according to claim 60, for scheduling customer access to data provided by a	This presently described system differs from normal pay-per-view techniques because it allows, in certain instances, the user to schedule the viewing. The prospective event discussed above refers to a scheduled	1505	92:3-6 163:17-20

40

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
plurality of data sources, further comprising:	event, which is likely to occur in the future. The characterization unit also has a local database 2413 for storing schedule information and the like.		
means for creating a customer profile for each customer of said plurality of data sources, said customer profile indicating said customer's preferences for predetermined characteristics of the data sources;	In the case of a single user or group of users, the interface could maintain a history of feature usage for each user, as in the past user history block 2107, and provide a lower user interface level for those features which are rarely used, and therefore less familiar to the user, through the current user level output 2101.	2502, 1909, Fig. 22, 2304, 2407	107:14-19
said monitoring means monitors which data sources are actually accessed by each customer; and	The intelligence of the device of the present invention is not limited by the foregoing examples; the user could also input characteristics of the program material that are desired, and characteristics of that program material which is not desired. The device would then, over time, monitor various broadcast choices, and determine which most closely match the criterion, and thus be selected.	1707, 2107	107:20-25 108:1
said updating means updates each customer profile to reflect the frequency of selection of the data sources by customers with customer profiles substantially similar to said each customer profile.	It has been found that in the case of novice users, a greater number of simple instructions may be more quickly and easily input rather than a potentially fewer number of a larger set of more complex instructions. It has further been found that, even if presented with a set of instructions which will allow a program to be entered with a fewer number of inputs, a novice user may choose to input the program using the simple instructions exclusively, thus employing an increased number of instructions and being delayed by an increased search time for those instructions that are used, from the larger set. One goal of the interface of the present invention is to minimize Tacquire. By Card's model, the execution time is the time, tj, for each of these operators j weighted by the frequency, nj, with which they occur, plus the total system response time, TR, to the steps performed by the user.... Thus, if the user has only used the VCR to record, e.g., the NBC 11 o'clock news, i.e., record all days from 11:00 p.m. to 11:30 p.m. on NBC, in the past, the most likely current predicted choice would be the NBC 11 o'clock news. The interface of the present invention would study the initial behavior of the user to determine the expected user level of that user. The most frequently used choices preferably should be displayed, as the default setting. The system's logic should reflect the users' expectations, offer visual clues and feedback, and stay within human memory limits.	Figs. 21, 22	89:2-11 132:20-25 165:22-25 106:14-16 85:1-2 95:2-4
64. The system according to claim 58,	It is also noted that the interface of the present invention need not be limited to audio-visual and multimedia applications, as similar	1505	120:14-17 200:20-25

41

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
being a multimedia terminal for receiving data from a plurality of data sources, further comprising:	issues arise in various programmable controller environments. However, by incorporating the advanced interface and pattern recognition function of the present invention, as well as its ability to interface with a variety of unrelated sensors, the present device, the present control may be more easily programmed to execute control and alarm functions, may provide a centralized source of patient information, including storage and retrieval, if diverse sources of such information are linked, and may execute advanced, adaptive control functions.		201:1-3
means for storing at least one customer profile indicating a customer's preferences for data having predetermined characteristics:	Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401.	1702, 1703	162:25 163:1-3
means for storing content profiles for each data source of said data, said content profiles indicating the degree of content of said predetermined characteristics in data from each data source:	Another object of the present invention provides a system for presenting a program to a viewer, comprising: a source of program material; means for determining a viewer preference; means for receiving the program material from said source; means for characterizing the program material based on its content; means for correlating said characterized content of the program material with said determined viewer preference to produce a correlation index; and means for presenting the program material to the viewer, if said correlation index indicates a probable high correlation between said characterization of the program material and said viewer preference.	1909, Fig. 22, 2304, 2407	66:15-25 67:1-4
means for inputting recipient identity information:	The system next must determine what function the user wishes to perform. In this regard, if more than one user has access to the system, the user identifies himself to the interface, in a user identification step 1701 or an analogous action, which may be a coded entry, or a selection from the menu. If the interface has voice recognition capability, then the user may be recognized by his voice pattern, or merely by stating his name. The interface then accesses the memory for a profile of the past use of the machine by the user, which may include the entire prior history, relevant abstracts of the history, or derived user preferences, as shown in the personalized startup based on user profile step 1702, which information is also stored and used in the past user history determining element 2107. These choices differ in the amount of storage necessary in order to retain the desired information. Thus, as shown in Fig. 17, the user identifies himself to the controller in block 1701. The controller 1806 of Fig. 18 thereafter uses a stored profile of the identified user in controlling the interaction with the user, as shown in block 1702 of Fig. 17, from information stored in the database 1807 of Fig. 18 of the present invention. A further example of the use of the advanced intelligent features	1701	165:7-21 88:21-25 170:1-25 171:1-9

42

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
	of the present invention would be if the user wished to record, e.g., "live" musical performances. These occur on many "talk" shows, such as "Tonight Show with Johnny Carson" (NBC, 11:30 p.m. to 12:30 p.m., weeknights), "Saturday Night Live" (NBC 11:30 p.m. to 1:00 a.m. Saturday-Sunday), and other shows such as the "Grammy Awards". The interface, if requested to record such performances would seek to determine their occurrence, by, e.g., analyzing a broadcast schedule, by, e.g., interacting with the on-line database 2411, and the local database 2413. When the interface determines with high probability that a broadcast will occur, it then monitors the channel(s) at the indicated time(s), through the plurality of tuners 2502. In the case of pay-per-view systems and the like, which incorporate encrypted signals, an encryption/decryption unit 2509 is provided. This unit also allows encryption of material. During the monitoring, the interface system acquires the audio and video information being broadcast, through the signal receiver 2408, and correlates this information with a known profile of a "live musical performance", in the preference and event correlator 2412. This must be distinguished from music as a part of, e.g., a soundtrack, as well as "musicals" which are part of movies and recorded operas, if these are not desired. Further, music videos may also be undesirable. When the correlation is high between the broadcast and a reference profile of a "live musical performance", the system selects the broadcast for retention. In this case, the information in the intermediate storage 2503 is transferred to the plant 2507, which includes a permanent storage device 2508. The intermediate storage 2503 medium is used to record a "buffer" segment, so that none of the broadcast is lost while the system determines the nature of the broadcast. This, of course, allows an extended period for the determination of the type of broadcast, so that, while real-time recognition is preferred, it is not absolutely necessary in order to gain the advantages of the present invention.		
means for selecting different customer profiles which correspond to said recipient identity information in accordance with the time of day and day of the week;	When a user regularly applies the VCR device, for example, to record a given television show which appears weekly on a given television channel, at a given time, on a given channel, such an action could be immediately presented to the user as a first option, without forcing him to explicitly program the entire sequence. Further, if an entire television programming guide for a week or month is available as a database, the interface could actively determine whether the desired show is preempted, a repeat, changed in time or programming slot, etc. Thus, the interface could present information to the user, of which he might not be aware, and predict an action based on that information. Such a device could, if set in a mode of operation that allows such, automatically execute a sequence of instructions based on a predicted course of action. Thus, if a user is to be absent for a period, he could set the machine to automatically record a show, even if the recording parameters are not known at the time.	1702	160:1-6 160:7-17
processing means for relating said selected	The system next must determine what function the user wishes to perform. In this regard, if more than one user has access to the	Figs. 17,	165:7-21 88:21-25

43

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
customer profiles with the content profiles for the data available from each data source to the customer at a particular time and for determining a subset of data having content profiles which most closely match said selected customer profile; and	system, the user identifies himself to the interface, in a user identification step 1701 or an analogous action, which may be a coded entry, or a selection from the menu. If the interface has voice recognition capability, then the user may be recognized by his voice pattern, or merely by stating his name. The interface then accesses the memory for a profile of the past use of the machine by the user, which may include the entire prior history, relevant abstracts of the history, or derived user preferences, as shown in the personalized startup based on user profile step 1702, which information is also stored and used in the past user history determining element 2107. These choices differ in the amount of storage necessary in order to retain the desired information. Thus, as shown in Fig. 17, the user identifies himself to the controller in block 1701. The controller 1806 of Fig. 18 thereafter uses a stored profile of the identified user in controlling the interaction with the user, as shown in block 1702 of Fig. 17, from information stored in the database 1807 of Fig. 18 of the present invention. A further example of the use of the advanced intelligent features of the present invention would be if the user wished to record, e.g., "live" musical performances. These occur on many "talk" shows, such as "Tonight Show with Johnny Carson" (NBC, 11:30 p.m. to 12:30 p.m., weeknights), "Saturday Night Live" (NBC 11:30 p.m. to 1:00 a.m. Saturday-Sunday), and other shows such as the "Grammy Awards". The interface, if requested to record such performances would seek to determine their occurrence, by, e.g., analyzing a broadcast schedule, by, e.g., interacting with the on-line database 2411, and the local database 2413. When the interface determines with high probability that a broadcast will occur, it then monitors the channel(s) at the indicated time(s), through the plurality of tuners 2502. In the case of pay-per-view systems and the like, which incorporate encrypted signals, an encryption/decryption unit 2509 is provided. This unit also allows encryption of material. During the monitoring, the interface system acquires the audio and video information being broadcast, through the signal receiver 2408, and correlates this information with a known profile of a "live musical performance", in the preference and event correlator 2412. This must be distinguished from music as a part of, e.g., a soundtrack, as well as "musicals" which are part of movies and recorded operas, if these are not desired. Further, music videos may also be undesirable. When the correlation is high between the broadcast and a reference profile of a "live musical performance", the system selects the broadcast for retention. In this case, the information in the intermediate storage 2503 is transferred to the plant 2507, which includes a permanent storage device 2508. The intermediate storage 2503 medium is used to record a "buffer" segment, so that none of the broadcast is lost while the system determines the nature of the broadcast. This, of course, allows an extended period for the determination of the type of broadcast, so that, while real-time recognition is preferred, it is not absolutely necessary in order to gain the advantages of the	24, 25, 26	170:1-25 171:1-9 160:7-15

44

APPLICATION CLAIM	SPECIFICATION SUPPORT	FIGS	SPEC. Page:Line
	present invention. Further, if an entire television programming guide for a week or month is available as a database, the interface could actively determine whether the desired show is preempted, a repeat, changed in time or programming slot, etc. Thus, the interface could present information to the user, of which he might not be aware, and predict an action based on that information. Such a device could, if set in a mode of operation that allows such, automatically execute a sequence of instructions based on a predicted course of action.		
a display guide for presenting said subset of data to said customer for selection.	Further, if an entire television programming guide for a week or month is available as a database, the interface could actively determine whether the desired show is preempted, a repeat, changed in time or programming slot, etc. Thus, the interface could present information to the user, of which he might not be aware, and predict an action based on that information. Such a device could, if set in a mode of operation that allows such, automatically execute a sequence of instructions based on a predicted course of action. The prospective and real time event characterization unit 2407 also interacts and receives an input from a telecommunication module 2410, which in turn interacts and receives information from an on-line database 2411.	2411, 2402, 2405	160:7-15 163:9-12
65. The system as in claim 64, further comprising means for storing an electronic program guide, wherein said display guide highlights programs within said electronic program guide which correspond to said subset of data.	Further, if an entire television programming guide for a week or month is available as a database, the interface could actively determine whether the desired show is preempted, a repeat, changed in time or programming slot, etc. To eliminate the possibility of the user trying to make selections on merely informative help screens, the cursor, in these cases, should be locked to a choice which returns the user to where they left off in the programming sequence, and this choice should be highlighted.	2411, 1502	160:7-10 86:22-25 87:1

45